

Gentleness

in vitro study

In vitro assessment of dentin wear resulting from the use of oral hygiene devices

de Jager M, Nelson R, Schmitt P, Moore M, Putt M, Kunzelmann KH, Nyama I, Garcia-Godoy F, Garcia-Godoy C. In vitro assessment of toothbrushing wear on natural and restorative materials. *Compend Contin Educ Dent.* 2007; 28 (suppl 1):42-50

Objective To evaluate dentin wear associated with the use of the Sonicare FlexCare power toothbrush compared to Oral-B Triumph® and a manual toothbrush using simulated clinical conditions.

Methodology Forty human dentin slices with a surface of 3x10 mm were embedded in temporary crown and bridge material and polished to render a smooth surface as starting condition. Samples were either brushed with Sonicare FlexCare at 90 grams, Oral-B Triumph at 150 grams or Oral-B P-35 Soft® manual toothbrush at 250 grams. These brushing loads are representing clinical use conditions. All specimens were brushed using a toothpaste slurry based on Crest Cool Mint Gel for a period representing two years of clinical brushing. Dentin wear was determined before and after brushing using 3D laser triangulation measurements to establish induced wear from toothbrushing.

Results Sonicare FlexCare resulted in significantly less dentin wear than both the manual toothbrush ($p < 0.05$) and the Oral-B Triumph ($p < 0.05$). There was no significant difference between the manual and Oral-B Triumph brush.

Conclusion In this in vitro study, Sonicare FlexCare was found to cause 50% less dentin wear than a manual toothbrush and a rotating-oscillating power toothbrush.

